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lar verb, which undergoes *eleven* inflexions, besides the personal terminations should be conjugated through five moods, and *four* tenses; when it is considered that many of the ablest grammarians, inflect the English verb through five moods, and *six* tenses, though it undergoes only *three* variations. The very different form assumed by several verbs, when used affirmatively, negatively, and interrogatively, suggested the propriety of exhibiting them at large. Indeed copiousness has been my object throughout; as I conceived it more useful to publish a book which a man might consult, than one that a child might get by rote. I believe the scheme of Irish verbs exhibited at pages 62, and 66, is more *concise*, and complete than any thing published before on the same subject.

But the most singular sentence in the review is the following. "The work also contains *some* familiar dialogues which will be useful to the student, and a translation of the songs of Deardra, from the death of the three sons of Usna. If these were intended for an exercise to learners, they are too loosely translated."

Whether the incorrect punctuation here be *intentional* or not, I cannot determine; but it certainly implies that the translation of the dialogues, &c. (comprising 84 pages, on a variety of subjects) and that of the *three* songs is equally free. This is incorrect. The former are translated with great closeness; the latter with that freedom which is observed in the most elegant translations.

The standard of orthography, which I have always followed, is the Irish Bible, published nearly 130 years ago, by bishop Bedel. When a better shall be invented, I shall readily adopt it; in the mean time, it is sufficient to observe that the ancient manuscripts afford no *one* such standard

I am sir, yours &c.

Dundalk, May 5, 1809. W. NEILSON.

P. S. I forbear to make any remarks upon the anonymous grammar recently published; as I think the compiler of one grammar not the most proper person to review the similar work of another.

For the Belfast Monthly Magazine.

ON THE COMPARATIVE STRENGTH OF BARILLA AND POTASH.

I AM pleased to find that your Magazine gives an account of the new discoveries in chemistry, and thus may serve as a literary journal of the progress in the sciences and the arts, after the model of the most respectable British Magazines—a line hitherto very seldom attempted in Ireland, but in which I trust you will persevere. You must frequently borrow from brother Journalists, who live nearer to the sources of intelligence; but when you candidly acknowledge your obligations, all is fair. Practical communications on subjects relating to the staple manufacture of Ireland, particularly that part of it so closely connected with chemistry, might be very serviceable. To contribute my share, and in hopes of drawing forth similar contributions from others, I send an account of some experiments lately made at my bleach-green on the comparative of barilla and potash by means of the alkaline hydrometer, graduated so, that 0 stands for water and $3\frac{1}{2}$ to 4 denotes the strength used for the ley in bleaching. An equal weight of the following alkalies, dissolved in similar quantities of water, produced the following results:

Barilla,.....	$3\frac{3}{4}$
Montreal Potash,	$6\frac{1}{2}$
New York ditto.	$6\frac{1}{4}$

Or in round numbers the comparative strength of those materials was in the following proportion, and consequent value in bleaching viz.

Barilla,.....	15
Montreal Potash,	26
New York ditto.	25

So that as an efficacious material in bleaching, barilla does not appear to be worth more than three fifths of the value of potash. K.

NATURAL HISTORY OF THE HERRING,

Concluded from p. 245, *No. IX.*

THE herring is very much exposed to pursuit; man above all is its particular foe, not only along the coasts, but sometimes even in the open

sea, as is the case with the Dutch, who fit out entire fleets to seek them in the ocean. The whale also, particularly that species called *Nord-caper*,* destroys them by thousands. This creature turns itself round with such rapidity, that it not only receives a large quantity of herrings into its mouth, as into an immense gulf, but causes an agitation in the waters, which is sensibly felt by any boats in its vicinity.†

The water-fowl also, and in particular the herring-gull,‡ pounce by thousands on them from the air. This bird directs the fishermen to the proper places for laying their nets. When it flies high, it is a sign that the herring is near the bottom; when low, it shows that the herring is moving near the surface; should the weather be very hot, the fish keeps near the bottom, where the bird can neither see it, nor point it out, and the fishing is then generally bad.

We have already said that the Baltic trout (Salmo Lavaretus) follows the herring to eat its eggs, and thus is an obstacle to its increase; the same may be said of the Salmon trout (Salmo Trutta.)

Many kinds of fish in the ocean are found to be very numerous, such as the smelt (Salmo Eperlanus) the sole, the cod,§ the Shad (Clupea Alosa) and the sprat (Clupea Sprattus) but none so much as the herring.

During many ages, man has destroyed at least a thousand million annually; other animals devour an equal quantity without any diminution of the prodigious numbers of this fish. We may form a judgment of this quantity from the following fact: in the single parish of Svanoe, in Norway, such a number of herrings were caught in one year, as filled eighty *jagts*. It requires an hundred tons to load a *jagt*, and one ton contains 1200 small herrings of the North. Now according to Pontoppidan, an equal quantity are stifled in the strait, on account of their numbers; we may therefore conclude that there are in this place about 19,000,000. According to the same author, as many herrings may be caught in a single haul of the net as would fill an hundred *jagts*, that is, ten thousand tons. Finally, M. Fabricius assures us that by enclosing an arm of the sea with a net, many thousand tons may be caught. In Norway, as the herring constitutes the principal part of the food of the inhabitants it has been called the king of fishes. From Berghen alone they export several hundred cargoes annually. In 1752, when the fishery was by no means abundant, 132,156 tons were exported from this city, between the months of January and October, without including what were exported towards the end of the year. If we count all those which are sent from other towns, the great quantity consumed in the country, or used for bait, we may calculate that in this country alone they take on an average annually, the quantity of 396,468 tons; and supposing each ton to contain 1200 fish, makes their number 415,739,600.

The Dutch annually send a thousand or twelve hundred hoys to the herring fishery. Twenty-five lasts are generally supposed to be the cargo of a hoy, and it often happens that many are filled a second time, when the first cargoes have been expeditiously landed. Suppose there are but a thousand hoys, and allow twenty-five lasts to each, and a thousand herrings to the ton, each last contains twelve tons; whence it appears that the Dutch annually catch 300,000,000 herrings. Not fewer are caught in Scotland and Ireland; thirty thousand tons are annually sent to France, from Clyde, in Scotland, and forty thousand from Yarmouth. Sometimes the take of fish is so great in this place, that it gives employment to eleven hundred vessels, which contain 140,000,000 herrings; if to this

* Balœna Glacialis.

† We may judge by an anecdote related by Horrebow, how many herrings one of these fishes can swallow at once. The Icelanders once seized a whale which having approached too near the shore while it was in pursuit of hake (*Gadus Merluccius*) was left dry on the bank, they found in its stomach six hundred five hake, besides a great quantity of sprats, and some water-fowl.

‡ Larus fuscus, L.

§ Schonevelde, calls the cod-fish (Gadus merhua) Kablaun. And Linné in his "Fauna Suecica" calls it Cabblia. Can Cabliau be the same? Trans.

be added those taken on the coasts of England, Scotland, Ireland, Holland, Brabant and Flanders, the quantity will be immense. In 1776, different towns in Ireland sent three hundred and twenty-seven boats to the herring fishery, each boat on an average took 100,000, making in all 32,700,000. The French save about 60,000 tons annually. In Chesepeake-bay the inundations throw up such quantities on the shore as to occasion fatal consequences from the putrefaction. In the neighbourhood of Gottenburgh in Sweden, they are also taken in large quantities, and 200,000 tons are saved annually: besides this 400,000 tons are used annually for extracting the oil. In 1780, from twenty-five to twenty-seven thousand tons of oil were exported; but in 1781, not more than twenty-two thousand. In addition to this must be reckoned fifty thousand tons of fresh herrings either consumed in the country or sent to Denmark. Now reckoning the ton at 1,200 herrings, upwards of 720,000,000 fish are annually destroyed in this small district.

Lapland is also supplied with this fish. According to the account of Ysbrand, and Kraschennennikow, they may be also found in considerable numbers in Kamtskatka, where four tons are often caught at one draught. We must also take into consideration those on the shores of the Baltic.—The inhabitants of Holstein, Mecklenburgh and Swedish Pomerania also take them in great numbers every year; of these some are salted, others smoked and sent out of the country, without reckoning such as are consumed in Livonia and the other countries on the shores of the Baltic.

The nets and boats used in the herring fishery, are of different sizes. Those employed by sailors near the coasts, are smaller than what are used in the open sea. The Dutch hoys are generally from forty-eight to sixty tons burden; some however are from eighty to a hundred, the largest of which contain sixty lasts. Three or four *jagts* are required for each hoy, to supply them with provisions, and to receive the herrings caught in the three first months, and to convey them as expeditiously as possible to the nearest ports. According to a decree of the magistrates, the Dutch nets ought to be five or six hundred fathoms in length, and to consist of fifty or sixty parts. At present they are made of a kind of coarse Persian silk, of a texture so durable, that a net of this kind lasts three years, while one of hemp serves but for one. They are blackened by the smoke of chips, that the brightness of their colour may not alarm the fish. On the upper side they are kept afloat by casks, and stones fastened on the other edge force it to sink. The nets are cast at night because the fishery of herrings like that of most other species is then most successful. Herrings are also apt to be attracted by the light; for this reason lanthorns are suspended to the hoys in order to entice them to the nets, which are sometimes so full that a single one is often found to contain from ten to eleven lasts. This fish also takes the bait. Mr. Low assures us that he has caught many thousand with a trout fly. The fishermen often make use of the hook to discover the place where the fish may be found; they throw out a line, and when they catch a herring they think the situation favourable.

This fish is salted in two different ways; one of which makes what is called the white herring, the other the smoked herring. The former is prepared in the following manner.—As soon as the fish is taken out of the water, the throat is cut and the entrails taken out: it is then put into a brine so thick that a herring will float on its surface. At the end of sixteen or eighteen hours they are taken out and put into the ton, for the quantity is so great that it does not allow of their being embowelled immediately in the ship as should be done. But as this is not sufficient to secure them from putrefaction, they are spread out on benches as soon as they are brought to land and again sprinkled with salt. Five pounds of Spanish salt, together with fresh brine is employed for each ton. In Holland, the brine is made under the eye of the government. According to the laws of this country the good and bad are bar-

relled up separately, and their comparative value marked by a brand on the cask. They also take care that the casks be made of oak, and to join the pieces closely, lest the brine should waste and the herrings spoil. In the other method of saving them the herrings remain longer in the brine, that is for twenty-four hours at least. When taken out, they are strung up by the heads on small wooden skewers, and hung up in chimnies made for the purpose, called *roussables:* beneath this is placed a small wood fire so arranged as to produce little heat and much smoke. They remain in the stove until they are sufficiently browned and smoked: which generally is the case in twenty four hours; they are then put into casks or laid in straw. The largest herrings are generally chosen for this purpose, and the Dutch smoked herrings are preferred to all others.* In Sweden and Norway they are prepared in a different manner; less salt is used, and they are laid in casks either perforated or entirely open. The Irish dry their herrings on the rocks, and the Greenlanders in the air.

Salt herring when eaten in small quantities is not injurious to the health, on the contrary it is peculiarly serviceable to such as have lost their appetite through a weakness of the stomach; but it has a different effect on those who have an abscess on the lungs, or in any other part of the body, either internal or external, or even on those who are of a scorbutic habit.

The herring can be removed from one part of the sea to another as has been practised with success in Sweden. They can also be multiplied by means of their eggs, as may be seen by the following passage extracted from the travels of Peter Kalms. As the passage agrees so well with my subject, I shall quote it all together.

"Mr. Franklin told me the following fact: In the part of New England where his father lived, two rivers discharge themselves into the sea, in one of which a prodigious quantity of herrings were caught, while none could be found in the other, though the mouths of both were contiguous. It had been remarked that the herrings went up every spring to the same river, in order to lay their eggs. M. Franklin, who lived between the two rivers, thought it might be possible to make the herrings go up the other river also. For this purpose he took the nets to which the fish had fastened their eggs, and laid them in the other river, where they were hatched. The experiment succeeded, and every year after herrings were caught in this river. However this may be, it serves to show that fish like to return to the places where they were born, and where they have entered the first time they quitted the main ocean, in order to spawn in the place to which they have been accustomed."

The cavity of the belly in the herring is long, the melt and ovary are double. The latter weighed seven drams in a middle sized herring, and contained 68,656 eggs, which were white, and very small. But as Harmer found but 10,000 in one herring, it is probable that the fish which he inspected had been caught at the spawning time, and had discharged part of its eggs. The air-vesicle is simple, and terminates in a point at each end. The stomach consists of a thin skin; the internal canal is strait, short, and encompassed with twelve appendices. There are thirty-five ribs on each side, and fifty-six vertebræ in the dorsal spine.

This fish, when it comes from the Northern Ocean, is called

Heering, Hering, in Germany.

Strohmling, when it comes from the Baltic,

Buckling, when it is smoked.

Strohmling, Strimmales, Silk, Konn, and *Kenge,* in Livonia.

Sill, in Sweden, when it is of a large size.

*The common suffrage of all nations confirms it that the Dutch herrings are the best. No other cause can be assigned for this general preference than the scrupulous adherence to the regulations and provisions just mentioned, it being by no means true that the art of curing, salting, and packing herrings is confined to the Dutch alone.

Tilloch Phil. Mag. xvi. *p.* 47.

Stroming, or *Stromling*, when it is small.

Sild, *Quale-sild*, and *Grabeen-sild*, in Denmark, when it is large, *Stromling* when it is small.

Straale-sild, and *Gaate-sild*, in Norway.

Kapiselikan, in Greenland.

Beliscbutsch, in Kamskatka.

Haring, in Holland.

Herring, in England.

Hareng, in France.

To be continued.

For the Belfast Monthly Magazine.

THE EXCURSION....A DIALOGUE.

MRS. E. You say there was something wanting to complete the happiness which you hoped to enjoy in your excursion yesterday.

Mary. Yes Ma'am, and without that something I would have preferred staying at home.

Mrs. E. Pray were your companions disagreeable?

Mary. No, I could not find fault with them, they were very obliging.

Mrs. E Was your conveyance inconvenient?

Mary. Our carriage was completely calculated not only for ease, but that we might behold all the surrounding beauties.

Mrs. E. Were you uncomfortable at having left home, or what was the cause of your dissatisfaction?

Mary Having left every thing regulated at home, and in good hands, I set out without any anxiety, and was rejoiced at the prospect of beholding a country famous for its beauty; and the idea of travelling with my old school-fellows, was an additional pleasure. As soon as we were in sight of a small portion of the beautiful scenery which was new to me, I admired aloud every thing which struck me; my companions answered "it was very pretty," and continued the discourse which they had just commenced about the convenience of hats and habits for travelling. I was a little disappointed, but as we advanced farther into that enchanting country, so amply enriched with variety of scenery both fertile and wildly sublime, I thought surely their admiration would be called forth, but what was my astonishment and mortification that they still continued their trivial conversation, and seemed to grow tired of my remarks, not even granting me the two words "very pretty." I then endeavoured to be silent and to enjoy myself without their assistance, but I found it was impossible to have complete happiness without participation. Sometimes I incommoded my friends by turning round to look at every side. Almost at the end of our drive we descended into a deep glen, the solemnity and grandeur of which enraptured me. I considered what enjoyment I should have if I was there alone, and at liberty to walk slow, and to climb up the sides, from the top of which I was sure there were lovely prospects; I also considered that I might probably never be there again, and was extremely mortified to be driving through it, as if it were the most uninteresting place in the world; but as we professed to be on a party of pleasure, I requested to be let down to walk there until they returned; they were very unwilling, but said if I chose to be so odd I might do as I pleased: accordingly I got out, and never did I behold any thing to equal the beauties around me. But there was something wanting; my heart was overflowing with rapturous delight, but there was no one to participate with me. But to be alone was much better than to be listening to conversation which so disagreed with my feelings. My companions returned and took me up. I was silent most of the remainder of the journey, although I strove to enter into their discourse, but I found it impossible: now you know the whole cause of my dissatisfaction.

Mrs. E. I perfectly understand all the sensations of pain and pleasure, you have related. You are very young; you feel your heart glowing with admiration of nature; your natural warmth and sociability of disposition causes you to wish for participation, and your inexperience causes you to be disappointed and mortified when you meet with contrary characters; but wait a little while, and you will find your passions will become cooler, and experience